

MUNDÉ, (P.F.)

COMPLIMENTS OF THE AUTHOR.

A YEAR'S WORK  
IN  
LAPAROTOMY.  
(FORTY-FIVE OPERATIONS.)

BY  
PAUL F. MUNDÉ, M.D.,

PROFESSOR OF GYNECOLOGY AT THE NEW YORK POLYCLINIC; GYNECOLOGIST TO MOUNT  
SINAI HOSPITAL.

(WITH FOUR PHOTO-ENGRAVED PLATES.)



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[Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES  
OF WOMEN AND CHILDREN, Vol. XXI., January-February, 1888.]

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# A YEAR'S WORK IN LAPAROTOMY.

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It has become customary of late years for laparotomists to publish at intervals series of cases of abdominal section which they have performed. Such reports are valuable and instructive if they contain cases of exceptional interest or if the operator has special experience or certain practical hints of his own to communicate which may be of use to other operators. A mere stringing together of a number of cases is neither interesting nor beneficial to any one but the operator. Thinking that I have during the past year met with a sufficient number of unusual cases of laparotomy to warrant their being reported in a separate article, and wishing to put on record my practice and experience in abdominal surgery, I have decided to follow the popular custom and to publish a brief report of my abdominal operations during the past year.

During the twelve working months from October 16th, 1886, to January 1st, 1887 (omitting the three summer months when I am out of town), I performed 45 laparotomies. Of these,

22 were ovariectomies (17 recoveries),

13 were salpingo-oöphorectomies (12 recoveries),

2 were oöphorectomies (2 recoveries),

2 were hysterectomies (2 recoveries),

4 were exploratory incisions (4 recoveries),

1 was for encapsulated intraperitoneal abscess (death),

and 1 for intestinal obstruction (death);

that is, 37 recoveries and 8 deaths.

Sixteen were private cases, with but one death—the case of intestinal obstruction, a hopeless case as will be seen—and 29 hospital or charity cases. Some of the private operations were performed in the hospital, the patients having separate rooms and special nurses. Of the 35 operations involving removal of the



ovaries and tubes, 22 were double and 13 single. In 27 of these latter cases there were adhesions, generally very extensive; of these 5 died. The drainage tube was employed 12 times in 36 cases. On three patients laparotomy was performed twice (one case, two explorative incisions with recovery; one case, ovariectomy during pregnancy, recovery; second operation after delivery, for intestinal obstruction, death; one case, single salpingo-oöphorectomy by another operator a year before, recovery after second operation). On one patient I performed a third laparotomy for a cyst of the broad ligament and a ventral hernia, both ovaries having been previously removed for tumor at two operations by another operation.

Before proceeding to relate in detail the unusually interesting cases, I will explain the reasons for the nomenclature which I have given to the different forms of laparotomy.

Under the head of *ovariotomy* I have included the removal of tumors of the ovary, great or small, without reference to the disease of the tube (which in such cases is almost always of secondary importance), and cysts of the broad ligament which practically, so far as the operation is concerned, are identical with intraligamentous ovarian cysts.

Under the head of *salpingo-oöphorectomy* I have included the removal of diseased tubes *chiefly*, together with the ovaries, diseased or not, as the case might be, but not enlarged to the size of what is known as a tumor. This is the operation which has been known for some time past by the name of the operator who may be said to have first given it a distinct position in abdominal surgery—Tait. I have preferred to give it another name in order to avoid the confusion which still exists in the designation of the different operations relating to the removal of diseased ovaries and tubes. I have included under this heading all cases in which the tubes were enlarged, distended by fluid, or, with the ovaries, adherent to the neighboring organs. I wish it distinctly understood that in these cases the disease of the tubes generally exceeded by far that of the ovary.

Under the title *oöphorectomy* I mean the removal of the ovaries and tubes which *macroscopically* do not appear diseased, the operation being performed for the purpose of bringing on the menopause either for the relief of reflex neuroses, menstrual, psychic, or physical (Battey's operation), or to check the growth and symptoms of uterine fibroids (Hegar's operation). This

latter operation is called by the Germans "castration"—a term which expresses very well the anatomical and physiological consequences of the operation, but which, in the English language, has hitherto been applied only to the male, as the term "spaying" has been applied to the female. I prefer to use the more scientific term "oöphorectomy," viz., excision of the ovary; I do not say *normal* ovary, because as yet we are in doubt whether possibly the ovaries are not *always* pathological, under the microscope at least, whenever they produce symptoms such as occur in reflex neuroses. Presumably, when the ovaries are removed to check the growth of fibroids, the ovaries are normal. I am waiting for a larger number of cases (so far I have had but three opportunities to remove apparently normal ovaries for neuroses) before reporting my experience with this indication for the operation.

I will but say that, whenever I have removed the ovaries I have *always* included the tubes, whether diseased or not, in the ligature, since I could see no reason for leaving the tubes when the ovaries were removed, any more than I can understand why the ovaries should be left if the tubes are removed. Either one of these organs, without the other, is useless. Besides, the operation is quite as easy, if not easier, so far as the application of the ligature is concerned, if ovaries and tubes are removed together.

In order to aid in settling the question as to what is really Battey's, and what is Hegar's, and what is Tait's operation, I will briefly state the result of my understanding of the writings of these three surgeons.

*Battey's operation*: "Normal ovariectomy" is the removal of the presumably healthy ovaries and tubes, in order to produce the menopause (advised for reflex menstrual and other neuroses, physical and mental, distinctly referable to the function of the ovaries, and probably curable by the cessation of that function).

*Hegar's operation*: "Castration," "spaying," "oöphorectomy," is the removal of the not enlarged but probably *microscopically* more or less diseased ovaries (chronic oöphoritis, cystic degeneration, hematoma) for the relief of local pain and of reflex neuroses attributable to that pain.

Also, removal of normal ovaries and tubes to arrest the growth of uterine fibroids and the menorrhagia caused by them. Claim of priority is laid to this indication for oöphorectomy by



## LAPAROTOMIES, 1886-87.

Number.	Date.	Initials.	Age.	Married or single.	Children or abortions.	Pathological condition requiring operation.	Single or double.	Adhesions.	Drainage.	Hospital or private.	Result.	Ultimate result.	Remarks.	Cause of death.
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## A. Ovariectomies.

1886.														
29	Oct. 16th.	M. S.	34	M.	5	Multiloc. ovar. cyst. Pregnancy. cyst of right ovary.	S.	Extensive recent. Unilateral	No.	P.	R.	...	Pregnant 4½ mos. Safely delivered at term. Quilt suture to stop oozing.	
30	Nov. 3d.	J. R.	22	M.	..	Suppur. cyst of right ovary.	S.	Unilateral	Yes	H.	D.	...		Septic peritonitis, Nov. 10th.
31	Dec. 1st.	R. A.	24	M.	..	Cyst of left ovary. Adherent right ovary.	D.	Yes.	No.	H.	R.	Permanent recovery.	Severe hem. from adhesions of r. ovary; deep ligatures. Weight, 30 pounds.	
32	Dec. 5th.	M. W.	60	W.	6	Monocyst of left ovary.	S.	..	No.	P.	R.	Permanent recovery.	...	
33	Dec. 8th.	M. B.	23	M.	..	Suppur. cyst of l. ov. Intraligamentous l. ov. Pelvic multiloc. cyst right ovary.	S.	Unilateral	Yes	H.	D.	...	...	Septic peritonitis.
34	Dec. 22d.	M. C.	45	M.	4	Large dermoid l. ov. Pelvic multiloc. cyst right ovary.	D.	Dermoid, unilateral.	No.	H.	R.	Permanent recovery.	Explor. incision by other operator a year before. Operation abandoned. Adhesions most extensive I ever saw when cyst could be removed, to intestines, omentum, liver, etc. Weight, 10 pounds.	



1887.	C. O.	S.	..	Right ovary, monocyst. Left, small hematoma.	D.	..	No.	P.	R.	Permanent recovery.	...
35 Jan. 5th.			..								
36 Feb. 14th.	H. C.	42 M.	..	Both mono- cysts.	D.	..	No.	H.	R.	Permanent recovery.	....
37 Mar. 30th.	F. S.	35 M.	4	Largedernoid of right ova- ry; cystic degenera- tion of left ovary.	D.	Slight	No.	P.	R.	Permanent recovery.	Gravida 7½ mos. Induced prem. labor, living child; remained alive. Ovario- tomy 4 weeks later. Weight, 12 pounds. Acute interstitial nephritis 3 weeks after operation.
38 Mar. 30th.	E. P.	35 M.	..	Large hema- toma of left broad liga- ment.	S.	Intra- lig.	Yes	H.	D.	.....	Severe hem. from broad lig. Died well for 7 days. Died on 11th day.
39 April 6th.	F. S.	30 M.	1	Small cyst of left ovary. Adhesion of right ovary and tube.	D.	Uni- versal	Yes	P.	R.	Permanent recovery.	Acute interst. nephritis 3 weeks after operation. Ex- udation in left side of pel- vis. Convalescence pro- tracted.
40 April 23d.	M. B.	23 M.	1	Dermoid cysts of both ova- ries. Preg- nant 5 mos.	D.	To blad- der and ant. abdm. wall.	No.	P.	R.	Permanent recovery.	Operation indicated by occu- pation of pelvic cavity by a tumor, which would pre- vent normal delivery. Other ovary a dermoid cyst, size of fist, attached to ant. abdom. wall near umbilicus. General chronic peritonitis caused by rup- ture of one cyst months before. Delivery on 3d day; whole ovum intact,

Septic perito-  
nitis.

Number.	Date.	Initials.	Age.	Married or single.	Children or abortions.	Pathological condition requiring operation.	Single or double.	Adhesions.	Drainage.	Hospital or private.	Result.	Ultimate result.	Remarks.	Cause of death.
41	May 25th.	M. E.	43	M.	0	Ventral hernia. Dermoid cyst of left broad ligament.	..	Intra-ligamentous.	Yes	H.	R.	Permanent recovery.	Intralig. cyst of left ovary removed March, '81; adherent cyst of right ovary removed December, '81; both by Küster in Berlin. Large ventral hernia; cyst reaches to umbilicus on left side; contains colloid matter and bone. Reaches to floor of pelvis. Enucleation of sac; broad lig. sewed to abdominal wound. Packed with iodof. gauze. Irrigation and drainage. Slow but sure recovery; ventral hernia was excised and cured.	
42	May 25th.	T. W.	34	W.	0	Small dermoid cyst of left ovary.	D.	..	..	H.	R.	Small hematoma formed at right pedicle. Complete recovery. Permanent recovery.	Other ovary removed by wish of patient.	
43	June 1st.	R. B.	30	M.	6	Multilocular cyst of right ovary. Left ovary cystic	D.	Numerous adhesions to ant. abdom. wall; quit suture.	No.	H.	R.	Permanent recovery.	....	



44 June 1st.	R. I. '30	M.	0	Intraligamentous cyst of right ovary.	S.	Intra-lig.	Yes	H.	D.	....	Enucleation very difficult; Septic peritonitis. Cyst-wall very friable. Impossible to stitch it to abdominal wound.
45 June 5th.	P. F. '43	M.	1	Multilocular cyst.	S.	Complete.	Yes	P.	R.	Permanent recovery. Cyst nearly closed 3 mos. later.	Cyst completely adherent everywhere. Enucleation impossible. Filled with papillomatous masses attached to posterior wall. Rapid removal of papillomas with hand, hot irrigation, and Micleicz drainage sac, which was changed on 6th day. Ligatures of pedicles came away 3 months later.
46 June 19th.	I. S. '32	M.	2	Small ruptured cyst of left ovary; right, cystic.	D.	Complete on left side.	Yes	P.	R.	Permanent recovery.	Double torsion of pedicle to left, cyst size of coconut. Cutting of lig. on right pedicle. Secondary hem. Abdomen reopened; bleeding vessels ligated. Saline transfusion twice. Death from exhaustion after 30 hours.
47 Sept. 14th.	E. L. '25	S.	..	Dermoid cyst	S.	..	..	H.	R.	Permanent recovery.	Secondary hemorrhage. Exhaustion.
48 Sept. 14th.	M. S. '48	M.	6	of left ovary of both ovaries	D.	..	..	H.	D.	....	Cyst burst; too friable to be removed entire. Very bad case.
49 Oct. 12th.	A. C. '27	M.	1	Monocyst of left ovary. Chronic pelvic peritonitis.	S.	Universal.	Yes	H.	R.	....	Weight, 20 pounds.
50 Dec. 14th.	G. M. '42	M.	7	Polycyst of right ovary.		None.	No.	H.	R.	....	

17 Recoveries, 5 Deaths.

Number.	Date.	Initials.	Age.	Married or single.	(Children or abortions.	Pathological condition requiring operation.	Shingle or double.	Adhesions.	Drainage.	Hospital or private.	Result.	Ultimate result.	Remarks.	Cause of death.
<i>B. Salpingo-oöphorectomies.</i>														
1886.														
51	Nov. 7th.	G. M.	29	W.	..	Abscess of left ovary; right, large pyosalpinx.	D.	Un- versal	D.	H.	R.	Permanent recovery.	Right tube size of large sausage, adherent to whole posterior surface of uterus and touchable behind cervix.	
52	Nov. 14th.	C. G.	23	S.	..	Double peri-oöphoritis.	D.	Ex- ten- sive.	No.	P.	R.	Permanent recovery.	Ovaries shriveled and tubes intensely congested.	
53	Nov. 24th.	H. R.	28	M.	..	Hemat o-salpinx of left side.	S.	Ex- ten- sive.	No.	H.	R.	Permanent recovery.	Universal adhesions. Cyst ruptured. Warm irrigation. Uneventful recovery. Hematoma as large as two fists.	
54	Dec. 15th.	S. L.	25	M.	..	Chronic salpingo-oöphoritis.	D.	Com- plete.	No.	H.	R.	Permanent recovery.	Considerable hypertrophy of tubes.	
55	Dec. 23d.	L. A.	33	M.	..	Double pyosalpinx.	D.	Com- plete.	Yes	H.	D.		Abdomen reopened before death, and washed out. No cause for sepsis found.	General septi- cemia.
1887.														
56	Feb. 9th.	B. L.	30	M.	.	Double salpingo-oöphoritis	D.	Com- plete.	No.	H.	R.	Has climacteric neuroses.	Tubes much hypertrophied.	
57	Feb. 23d.	S. S.	25	M.	2	Double salpingo-oöphoritis	D.	Com- plete.	No.	P.	R.	Permanent recovery.	Tubes much hypertrophied. Ovaries not enlarged.	
58	Mar. 9th.	M. L.	26	W.	.	Double salpingo-oöphoritis	D.	Com- plete.	No.	H.	R.	Permanent recovery.	Small intestine accidentally cut into while opening peritoneal cavity. Catgut suture. No reaction.	



59	June 19th.	P. C. T. 28	M.	..	Hematoma of both ovaries	Uni- versal	Yes	P.	R.	Permanent recovery.	Cysts ruptured on removal; grumous blood washed out freely. Each cyst size of orange. Both tub. enlarged.
60	Sept. 21st.	H. S. 28	S.	..	Salpingo-oöphoritis.	Quite extensive.	No.	H.	R.	Permanent recovery.	Adhesions on left side detached, but as ovary and tube seemed healthy, they were returned. Right, enl., adherent, and removed.
61	Oct. 5th.	P. U. 25	S.	..	Right salpingo-oöphoritis	Quite extensive.	No.	H.	R.	....	Left ovary and tube removed by Dr. Polk 1 year ago. Return of symptoms on right side.
62	Nov. 23d.	K. M. 24	M.	..	Salpingo-oöphoritis.	Uni- versal	No.	H.	R.	As yet perfect recovery.	Both ovaries cystic, and one with small hematoma. Rupture of cysts during removal.
63	Nov. 23d.	E. R. 20	S.	..	Salpingo-oöphoritis.	Uni- versal	No.	H.	R.	As yet perfect recovery.	Veneral history since 14th year. Reflex vomiting. Ovaries as large as hen's egg; tubes not enlarged. considerable oozing during operation.

12 Recoveries, 1 Death.

## C. Oöphorectomies.

1887.	Jan. 19th.	F. H. 21	S.	..	Hystero-epilepsy.	..	No.	P.	R.	Partial improvement.	Ovaries apparently normal.
65	May 7th.	L. E. 31	M.	..	Interstitial fibroid of uterus.	..	No.	P.	R.	Permanent recovery.	Indication for operation is constant pelvic pain from pressure of tumor.

2 Recoveries.

Number.	Date.	Initials.	Age.	Married or single.	Children or abortions.	Pathological condition requiring operation.	Single or double.	Adhesion.	Drainage.	Hospital or private.	Result.	Ultimate result.	Remarks.	Cause of death.
<i>D. Hysterectomy.</i>														
1887. 66	Sept. 27th.	S. B.	30	S.	..	Subperitoneal fibroid of uterus.	D.	..	Yes	P.	R.	Permanent recovery.	No adhesions. Weight, 9½ pounds. Sprung from fundus. Extraperitoneal treatment of stump, elastic ligature, and pins. Cyst of right broad ligament emptied and drained.	
67	Dec. 21st.	A. C.	34	M.	2	Multiple Uterine fibroids.	D.	..	No.	H.	R.	Doing well to date. Stump dry.	No adhesions. Weight, 6½ lbs. Operation difficult. No pelvic dicle. Extra-peritoneal treatment of stump, elastic ligature, and pins. Pelvic portion had to be enucleated with fingers. Mulatto.	
<i>E. Exploratory Incisions.</i>														
1887. 68	Sept. 14th.	J. S.	30	M.	..	Papilloma of both ovaries and uterus.	..	..	..	H.	R.	Abdomen began to refill 3 weeks later.	Large, non-malignant papilloma. Indication for explorative incision was ascites. Had been tapped, and pelvic tumor then detected. Unremovable.	



69 Sept. 28th.	M. M. 33	S.	..	Ascites; doubtful tumor in left iliac fossa; proved to be general tubercular peritonitis.	..	..	P.	R.	No return of Ovaries and tubes probably tubercular. Mesentery studded with small tubercles. Lungs healthy. No tuberculous history. Died of general tuberculosis and marasmus on Dec. 20th.
70 Oct. 5th.	A. B. 16	S.	..	Ascites; doubtful hepatic tumor.	..	..	H.	R.	Recovery from operation. Wound healed. Death on 10th day from hypostatic pleuro-pneumonia.
71 Nov. 3d.	J. S. 30	M.	..	Same as No. 68. Papilloma of both ovaries and uterus.	..	U n i - versal	Yes H.	R.	Renewed attempt at removal. Profuse hemorrhage, which compelled me to desist. Adhesions too extensive.

## 4 Recoveries.

## F. Intestinal Obstruction.

72 Mar. 17th.	M. S. 34	M.	6	Fecal vomiting.	..	..	..	P.	D.	....	Same as Case 29. Normal delivery; 2 days later vomiting, finally fecal. Operation, 10th day; not allowed sooner. Numerous adhesions. Constricting band in right iliac fossa and numerous other adhesions.	Exhaustion. Death after 16 hours.
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## G. Encapsulated Intraperitoneal Abscess.

73 Dec. 25th.	S. R. 32	M.	5	Encapsulated intraperitoneal abscess.	..	U n i - versal	Yes H.	D.	....	Very bad case. Copious hot intraperitoneal irrigation. Shock. Rupture of abscess. Abscess over one quart fetid pus.	Exhaustion before and shock after the operation, 38 hours.
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TOTAL: 16 Private, 29 Hospital. 37 Recoveries, 8 Deaths.

Trenholme, of Montreal, who first performed it in January, 1876, Hegar following independently in August of the same year.

The question whether the ovaries are diseased or not should not, according to Hegar,<sup>1</sup> influence the name of the operation, which should be "castration," for every case of removal of the ovaries for the purpose of inducing the menopause.

Not the pathological condition of the ovaries, but the object attained by their removal, should, therefore, determine the name of the operation.

*Tait's operation:* "Salpingotomy," "salpingo-oöphorectomy," is the removal of the *diseased* tubes *and* ovaries, the tubal disease usually by far exceeding that of the ovaries, and being the chief indication for the operation (pachysalpingitis, pyo-salpinx, hydro-salpinx, hemato-salpinx, catarrhal salpingitis, all usually with extensive peritoneal adhesions).

The removal of the *normal* tubes and ovaries is not, as I understand it, "Tait's operation." To avoid this confusion, it would be better to call an operation by its anatomical and surgical name, or after the object in view, rather than by the name of the man who devised it. The best way would be to combine both methods, thus: Hegar's operation for colpo-perineorrhaphy, Tait's operation for salpingo-oöphorectomy, Emmet's operation for laceration of the cervix uteri, etc. But this plan is long and burdensome, and the only real way to avoid misunderstanding is for the whole profession to be perfectly sure what a certain operation bearing the name of its inventor is, and then to adhere to that nomenclature.

In the accompanying table, the numbering of the cases dates from my first case, my previous laparotomies being 28 in number. The plates are from photographs by Mr. O. G. Mason, photographer to Bellevue Hospital.

Foremost among the ovariectomies are three cases of ovarian tumor complicated by pregnancy, which, curiously, all occurred to me in the course of one year.<sup>2</sup>

CASE 29.—*Pregnancy of Five Months; Multilocular Ovarian Cyst; Ovariectomy; Recovery; Labor at Term.*—Mrs. P. S., 32 years of age, mother of four children, was seen by me in consultation with her physician, Dr. A. C. Benedict, of Yonkers, in September, 1886. The doctor had diagnosed an ovarian tumor, and on account of its rapid increase, the constant vomit-

<sup>1</sup> Centralblatt f. Gyn., Oct. 29th, 1887.

<sup>2</sup> These cases were reported in the N. Y. Medical Journal for August 6th, 1887.



ing of the patient, and her diminution of strength, he had tapped the cyst several weeks previously. It was now again refilling, and, fearing a return of the vomiting, he consulted me as to the advisability of a speedy operation. There was a suspicion of pregnancy, the patient having menstruated once four months before, while nursing her ten-months-old baby, but not since. I satisfied myself on examination not only of the presence of a multilocular cyst of the ovary, but also of an enlarged uterus, and did not hesitate to diagnose pregnancy. The patient's general condition was so bad that I advised feeding and stimulation *ad libitum*, and a postponement of the operation until the increase in size of the tumor or the return of the vomiting should call for speedy interference. She steadily gained strength and came to my office from Yonkers to see me. But a return of the vomiting within three weeks after my visit induced her to demand the operation at once, which was done on October 13th, at her home, under all antiseptic precautions, and with the assistance of my two associates, Drs. Grandin and Wells, and of Drs. Benedict and Warren, of Yonkers. The cyst was found largely adherent to the anterior abdominal wall, and was so friable that it was removed with some difficulty. It sprang from the right ovary. The left ovary was found healthy and was not removed. The uterus was carefully avoided. Fortunately the pedicle was long. Profuse oozing from torn adhesions on the anterior abdominal wall was checked by deep abdominal sutures approximating the bleeding surfaces. Complete closure of the wound with silk. Catgut suture of the peritoneum. Duration of the operation fifty minutes. Weight of the tumor and fluid about twenty pounds.

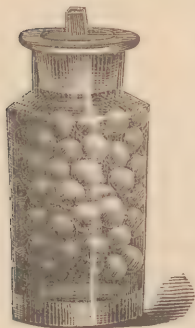
Almost immediately after the operation vomiting recommenced and continued in spite of all that Dr. Benedict could do. He telegraphed for me, and I went to Yonkers on the third day and found the patient in danger of dying from inanition, with a perfectly normal temperature. I at once dilated the cervical canal gently but thoroughly with my index finger, and advised a hypodermic of morphine over the epigastrium. The vomiting then ceased, and the recovery was uninterrupted. About March 5th she was easily delivered of a full-grown child.

CASE 37.—*Large Multilocular Dermoid Tumor; Pregnancy at Seven Months; Induction of Premature Labor; Living Child; Ovariectomy Five Weeks after Delivery; Recovery.*—Mrs. C. S., 41 years of age, multipara, consulted me May 7th, 1886, for an abdominal tumor, which I pronounced to be an ovarian polycyst, probably partly solid. Her umbilical circumference was forty-two inches. As I was about to go abroad, and the tumor was growing very slowly, I advised her to wait until the autumn, and then return to the city from her home in New Hampshire and have it removed.

In the autumn she wrote me that she was four months pregnant. I advised her to come on at once and have the tumor

removed. But I heard nothing from her until January 18th, 1887, when she came to my office. She was then fully six months pregnant, and I deemed it wiser for her to have premature labor induced as soon as the child was viable, and defer the ovariectomy until a later period. Accordingly, on February 25th, when her size had become such as to materially incommode her, I induced labor by inserting and leaving a catheter in the uterus, and the subsequent use of Barnes' dilators. A living child, weighing four pounds and a half, was born, which was brought up by hand, and eventually thrived well.

On March 30th I performed ovariectomy, removing a dermoid cyst of the right ovary, weighing twelve pounds, and containing numerous smooth, yellow balls of the size of hazel-nuts, floating in a pea-soup-colored fluid. These balls were examined by Professor Welch, of Johns Hopkins University, Baltimore, who pronounced them a great rarity, there being only two other cases on record—one by Rokitansky, Sr., the other by Routh, of London. Since then Christian Fenger, of Chicago, has reported a similar case from his own practice. Professor Welch states that the balls are composed of sebaceous matter, each ball containing one hair. The manner of their formation and of their acquiring so uniform and regular a shape, as by attrition, is a mystery.



The second ovary, being cystic, was also removed. Recovery was uninterrupted until the third week, and the patient was out of bed, when she was suddenly and mysteriously attacked with acute pyelonephritis, which for a time jeopardized her life, but from which she gradually recovered perfectly, returning home in June.

Having last spring had two cases of acute nephritis with pus and albumin in the urine, both occurring three weeks after laparotomy, in which ether was the anesthetic used, and there being no other cause for the nephritis discoverable, I have done my last 25 laparotomies under chloroform, without observing any kidney complications.

*CASE 39.—Dermoid Tumor of Each Ovary; Chronic Peritonitis from Rupture of One Cyst; Pregnancy at Five Months; Ovariectomy; Immature Delivery; Recovery.*—Mrs. B., 23 years of age, four months in her second pregnancy, consulted me April 2d, 1887, by advice of her physician, Dr. S. Glück, for a bearing-down sensation, which, she having had a very difficult first confinement, caused her more mental uneasiness than physical pain. I found the pelvic cavity filled with an elastic, immovable

mass, the cervix high up on the left, barely recognizable by the finger. Through the abdominal wall an indistinct enlargement could be felt on the right side reaching to the umbilicus; on the left side a solid tumor of the size and shape of the spleen. A subsequent examination, under chloroform, at the home of the patient, showed that the tumor in the pelvis was undoubtedly an ovarian cyst, and the tumor on the right side of the abdomen the gravid uterus. The nature of the small, hard tumor on the left side was doubtful. I made the diagnosis of an impacted ovarian cyst in the pelvis, with pregnancy of about five months, and advised speedy laparotomy as the best means of securing not only a continuation of pregnancy, but also a possibility, if pregnancy should not be interrupted, of permitting the birth of a living child *per vias naturales*, which, under present conditions, was, even at that early period, impossible. The other alternatives were, first, to puncture and empty the pelvic tumor, and take the chances of its refilling before the time for natural labor came on; second, the induction of abortion at once, which would, of course, deprive the patient of the possibility of bearing a viable child; and, third, the postponement of operative interference until at or near term, when ovariectomy, or probably Cæsarean section, might be called for.

Considering the excellent results obtained by ovariectomy during pregnancy in the many reported cases, as regards the persistence of pregnancy and the recovery of the mother, and the dangers and uncertain results of puncture of the pelvic cyst and Cæsarean section or ovariectomy at term, I advised early removal of the ovarian cyst, with the hope that the pregnancy would not be interrupted. Realizing the grave character of the case, I asked for a consultation with Dr. T. G. Thomas, who, after a thorough examination, concurred in my opinion.

Therefore, on April 23d, I operated at the patient's residence, all the usual antiseptic precautions (removal of carpets, curtains, furniture, fumigation of room, spray several hours before, etc.) being observed, with the assistance of Dr. Glück, who kindly administered the chloroform, and my associates, Drs. Grandin and Wells.

In reaching the peritoneum, the first difficulty was encountered, for the, as it proved, very much thickened peritoneum was hard to recognize. Only careful dissection prevented my injuring the bladder, which proved, when the peritoneal cavity was opened, to be attached to the peritoneum and the tumor on the left side, and was thereby drawn up nearly to the level of the umbilicus. I first removed this left tumor, after ligating and severing its attachments to the bladder, and found it to be a solid dermoid tumor filled with *black* hair. On searching for the pedicle of the right or intra-pelvic tumor, I was at first puzzled to find it, and thought I had to deal with an intra-ligamentous cyst which had grown down into the pelvic cavity. My only choice seemed to be to split its capsule and enucleate it, or else to open and drain



it through the vagina. But, on following the course of the Fallopian tube down toward the tumor, I suddenly grasped a large, flaccid sac lying loose in the abdominal cavity, which, on lifting it up, I found contained a rent into which I could pass my hand. The escape of abundant fluid from the peritoneal cavity, when it was first opened, was now explained. I had believed this fluid to be ascitic, the result of the chronic peritonitis, which was but too evident. But now I saw that this fluid was the contents of the ruptured right cyst (the escape of which months before—I afterward learned that the patient had an attack of peritonitis one year and a half before—had caused the thickening of the peritoneum and the adhesions). Drawing on this flaccid sac, I was able to dislodge the pelvic tumor, which was multilocular and semi-solid, and to bring it through the abdominal incision. Its pedicle was very broad and vascular, and I was obliged to clamp, tie and sear it so close to the uterus that I at once expressed the fear that that organ in its gravid state would not bear such active interference. This pedicle, like that of the left side, was dropped, and the abdominal cavity was thoroughly washed out with a solution of boric acid, 1 to 1,000, poured in from a pitcher. The abdominal wound was then closed by running catgut sutures applied in layers, beginning with the peritoneum. No drainage tube was used, although the last sponge on a holder removed viscid fluid from Douglas' pouch. But, as the large gravid uterus interfered with the insertion of a glass drainage tube, and as none but a curved or flexible tube would have answered, which was not at hand, it was thought best to take the chances of omitting drainage, trusting to the non-receptivity of the thickened peritoneum to septic influences—an assumption which proved correct.

The next three days were anxious ones, for the patient began to vomit soon after recovering from the chloroform, and nothing apparently could check this distressing symptom. On the third day, uterine contractions set in, in spite of the hypodermics of morphine which had been given at intervals since the operation to keep the uterus quiet; and on the fourth day I was suddenly called to find the whole intact ovum escaping from the vulva. Fortunately, the uterus contracted well, and no hemorrhage took place; therefore, no ergot was given. Several hours later, the temperature rose to  $101^{\circ}$ , the pulse to 130; the patient was dreadfully collapsed, the tongue being dry and red, the lips parched and chafed, and the blood apparently stagnating in the extremities, through the skin of which the purple veins could plainly be seen. The vomiting also persisted. I felt obliged to consider these symptoms due to septicemia, and confess that I feared a rapid fatal issue. I ordered five drops every hour of a two-per-cent solution of cocaine for the vomiting, and hypodermics of camphor and ether, and left the patient late in the evening, feeling doubtful as to whether I should find her alive next morning. But, after all, these threatening symptoms must

have been due entirely to mental shock, produced by the disappointment of the patient at losing her child, with no prospect of another, this shock acting on a system weakened by three days' vomiting; for, after a few doses of cocaine, the vomiting ceased, reaction came on, and on the next morning I found the patient visibly better. From that time on, convalescence was undisturbed, and the patient left her bed on the twentieth day. She is now a perfectly well woman. The uterus has regained its normal position in the pelvis, but is very little movable, owing to the adhesion of the pedicles of the tumors and the chronic peritonitis.

The tumors were both dermoid, the left one being solid—that is, filled with sebaceous matter and *black* hair—the right one being multilocular, one sac containing *blond* hair, the remainder presenting the usual appearances of an ovarian polycyst. The contents were so thick that an attempt to drain them through the vagina would have failed. This latter (pelvic) tumor fortunately had no adhesions whatever. (See Plate I.)

The large flaccid sac of the cyst which had previously ruptured was accidentally detached during the operation, and is not shown in the plate.

That the patient should have conceived with both ovaries so fearfully degenerated is indeed a marvel, and should teach us a lesson to preserve even portions of ovaries with the pervious tube (if the latter *is* pervious) during ovariectomies.

These three cases of pregnancy complicated by ovarian tumors illustrate several phases of this rare combination, the first being an instance of ovariectomy during pregnancy, with preservation of the fetus till term, and recovery of the mother; the second, the induction of premature labor, with the delivery of a living and still living child, and the early subsequent removal of the tumor, with recovery; the third, successful removal of the ovarian tumors, but interruption of gestation in consequence. So far as the chances of recovery from ovariectomy during pregnancy are concerned, they are fully as good as when no pregnancy exists. As regards the continuance of gestation, in the early months usually the prospect is also favorable. In the later months, when the child is viable and likely to survive, the induction of premature labor would appear to be preferable, with subsequent ovariectomy. When the operation is not urgent, it is well to defer it until the child has attained viability, in case the operation should bring on labor. I regret that in my third case the peculiar seat of the tumor in the pelvic cavity, and the fear of extensive adhesions and an increase in difficulty of the operation, if it was deferred, obliged me to

advise and perform it when the child was not yet viable. In another similar case, I think I should take the chances of waiting until the seventh month, in order to secure a viable child in any event. Both the greater difficulty of the operation, and the increased danger from septic infection and uterine hemorrhage, at a later period of gestation, must also be borne in mind in deciding the question whether it is wise to postpone the operation. For, after all, the mother's life is always the chief consideration. Tapping the cyst is not to be advised, even as a means of temporary benefit, except in cases where immediate relief from distention is called for, and ovariectomy cannot at once be performed.

CASE 34 was of particular interest because an exploratory incision had been made some time previously by another operator, who desisted because the adhesions were too extensive, so that the removal of the tumor seemed to him impossible. At first sight I was inclined to agree with him, but after ligating and severing a large number of adhesions to the omentum and anterior abdominal wall, I began to see my way to detaching the tumor, and after an hour or more of hard work, the intestine being largely adherent to the cyst-wall, I succeeded in removing the tumor, which weighed about ten pounds. It was adherent to the omentum, intestines, abdominal wall, bladder, and liver, and proved to be a dermoid cyst. The other ovary, enlarged to the size of a cocoanut, filled the pelvic cavity and was also removed. The patient made an easy recovery.

CASE 38 was a large hematoma of the left broad ligament, the sac of which tore while attempting to stitch it to the abdominal wound, and profuse hemorrhage ensued, requiring the enlargement of the incision and withdrawal of the intestines before the bleeding artery could be found; the hemorrhage was checked and a drainage tube introduced. Although my prognosis was unfavorable, the patient, to my surprise, did wonderfully well for six days; on the seventh day the drainage tube was removed; the patient began to complain of abdominal pain, looked badly, and the temperature rose. She died on the eleventh day, and the autopsy revealed a purulent peritonitis, undoubtedly of septic origin.

CASE 41 was in one respect the most interesting of the series, since it represents a third laparotomy for abdominal cyst in the same patient. The patient had been operated on in March, 1881, by Prof. Kuester, of Berlin, for an intra-ligamentous ovarian cyst of the left side; the right ovary at that time was found to be slightly cystic, and the cysts were punctured and cauterized with carbolic acid. In December of the same year, the patient reappeared with a second cyst springing from the right ovary, which was removed by the same operator. In May, 1887, she presented herself to me for a large ventral hernia of



which she wished to be relieved. I detected an abdominal cyst on the left side extending as high as the umbilicus. Aspiration gave a perfectly clear fluid which presented no characteristic appearances under the microscope. I did laparotomy, excised the redundant skin (fortunately there were no adhesions to the intestines or the tumor), opened the tumor, evacuated its contents, which proved to be colloid, and spiculæ of bone imbedded in its wall, and attempted to remove the whole mass. It was then found to be situated between the layers of the broad ligament and to extend down to the floor of the pelvis. I enucleated the whole sac of the tumor and stitched the edges of the enveloping broad ligament to the abdominal wound. The cavity was packed with iodoform gauze, which was changed every few days, the cavity being thoroughly irrigated and cleaned. The stitches were gradually removed, the cavity filled up, and after about three months was completely closed; the patient being cured both of her cyst and of her ventral hernia.

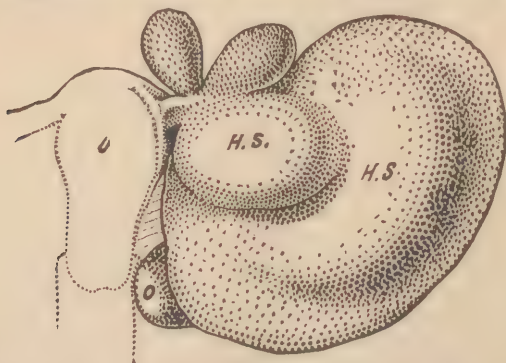
In CASE 47 the operation was performed on account of excessive pain. The small cyst (cocoanut) was found to have a pedicle twisted twice upon itself to the left. Rapid recovery.

CASE 48 was an unfortunate one, the incision being originally made for an exploratory purpose. The patient's abdomen was largely distended by ascitic fluid, but a vaginal examination showed the existence of some pelvic tumor which I suspected to be malignant. I found the left ovary to be a malignant papilloma with a pedicle, which I succeeded in ligating and searing without special trouble. Curious to see the condition of the right ovary, I lifted it up and found it to be of the size of a duck's egg and apparently cystic. I thought it would be easy to remove, and while drawing it up so as to be able to place a ligature around its pedicle, it suddenly broke (it was also malignant), and profuse hemorrhage took place which I arrested by ligatures with the greatest difficulty. I closed the abdominal wound and put in a drainage tube and sent the patient back to her bed. Just as I was concluding another laparotomy, the third on that day, I was notified that the patient was bleeding. I hastily finished the operation and proceeded to the previous case, reopened the abdomen, enlarged the incision, and withdrawing all the intestines, rapidly sought for and found the bleeding vessels, which were securely ligated and the wound closed again. The patient's pulse by this time was almost imperceptible, hence I at once directed transfusion with saline fluid (one per cent), which was performed by the house surgeon, Dr. Stark, in my presence, the result being a speedy return of the pulse and her return to a satisfactory condition, which continued until the following day, when she again began to fail. Transfusion was repeated, but without avail, for she died at the end of thirty hours.

Of the *salpingo-oöphorectomies* I will report in detail only three cases.

CASE 51 was, with one exception, the most marked case of pyo-salpinx which it has been my fortune to encounter. The right tube was distended to the size of a large sausage, was attached to the whole posterior surface of the uterus, and palpable through the vagina. The presence of pus had been recognized by aspiration per vaginam. The left ovary was changed into an abscess and was also removed. A drainage tube was introduced, and the patient made an uninterrupted recovery. (See Fig., case 51.)

CASE 53 was a large hemato-salpinx of the left side with universal adhesions, on detaching which the cyst ruptured. Copious irrigation with warm water of the peritoneal cavity was



Diagrammatic figure. Front view. *hs*, Hemato-salpinx; *o*, ovary; *u*, uterus.

practised, the cavity carefully sponged clean and dry, and the abdominal wound completely closed. Uninterrupted recovery.

CASE 59 was one of hematoma of both ovaries, which were enlarged to the size of an orange and completely adherent. On attempting to detach the adhesions, the sacs both ruptured and their grumous contents were discharged into the peritoneal cavity. Free warm irrigation was practised, a drainage tube introduced, and the patient recovered. (See Fig., case 59.)

In relation to these last cases I would make the remark that I have been at times disappointed in the information given me by repeated careful bi-manual examination as to the exact pathological condition of the uterine appendages. It is easy enough to recognize a distended or hypertrophied tube or a small ovarian cyst or a tube and ovary bound together as a distinct mass by adhesions, but it is exceedingly difficult, at times impossible even to the most practised touch, to decide whether the not enlarged ovaries and tubes are adherent to Douglas' pouch or not, or to distinguish a small flaccid cyst of the ovary or tube. The latter condition is no more distinguishable by the examining finger than would be a coil of intestine containing a moderate amount of fluid. Thus in case 59, I

utterly failed to feel the soft flaccid ovaries filled with fluid, and in another case, number 57, I was entirely unable to decide what the condition of the ovaries and tubes was until I had opened the abdominal cavity. The statement of Tait, therefore, that it is often impossible to make an exact diagnosis of these conditions before operation, is borne out to a certain extent by my experience. In such cases the indications for the operations will be based entirely upon the subjective symptoms, viz., pelvic pain, complained of by the patient.

One of the *oöphorectomies* was performed for symptoms which as yet are not thoroughly recognized as justifying this operation.

CASE 64.—The girl had been under the care of her family physician, a very intelligent practitioner, for several years for hystero-epileptiform seizures which she had had since the beginning of menstruation, in her fourteenth year. She had been subjected to all kinds of treatment, medicinal, electrical, and hygienic, without avail. She had consulted, a year previously, an eminent specialist who had advised removal of the ovaries. I saw her soon after and declined the operation until further efforts had been made to relieve her. Finally, no benefit having been obtained, after careful consultation with her physician, her relatives, and herself, an operation was decided upon. For several months after her recovery, her seizures markedly decreased; then they began to return, and when I last saw her, about ten months after the operation, the girl's condition was stated by her to be very much the same as before the operation.

It is my object, in relating these cases, to state *facts*; therefore I have no hesitation in reporting the want of success so far attained in this case. I am not without hope that ultimate complete benefit may be derived, but I think that this indication for *oöphorectomy* should be very carefully weighed.

CASE 65.—The other case of *oöphorectomy* was for severe pelvic pain produced by the pressure of an interstitial fibroid. There was no menorrhagia. The patient reported herself six months after operation as almost completely free from pain, and the tumor was found to have nearly disappeared.

I have done one other *oöphorectomy* for menorrhagia from fibroid, with complete success, the patient never menstruating again, and the tumor decreasing one-half within six months.

CASE 66.—The first *hysterectomy* was performed for a solid fibroid springing from the fundus uteri. The pedicle was encircled by an elastic ligature, transfixed by pins, and the tumor with the ovaries removed. The parietal peritoneum was stitched to the peritoneum of the stump which was cauterized with chloride of zinc



solution. The ligature was removed on the twelfth, the pins on the sixteenth day, and the patient returned home with the wound completely closed in the fourth week.

CASE 67.—The second hysterectomy was done for a subperitoneal fibroid weighing six and one-half pounds, which extended to the diaphragm on the right side, and dipped deep into the pelvis. Operation difficult. No pedicle. Pelvic portion had to be enucleated with fingers. The elastic ligature was employed, including both ovaries. Stump treated as in the previous case, but cauterized with the Paquelin tip.

Of the *exploratory incisions*,

CASE 68, the first was performed for ascites, the family physician of the patient having stated that he had tapped her some months previously and found a tumor in the lower part of the abdomen. On opening the abdominal cavity and inserting the fingers, I found a large papillomatous mass apparently including both ovaries and the uterus, and entirely irremovable. A portion of the growth was removed for microscopic examination and shown to be a papilloma and not malignant. The abdomen was closed, and the patient made a rapid recovery. The ascites began to reaccumulate within three weeks after the operation. Hence on November 3d (Case 71) I again operated on this woman and attempted to remove the tumor, but the adhesions were so extensive and the hemorrhage so profuse that I was compelled to desist. A drainage tube was inserted and removed on the sixth day. Sand-bag weighing 20 lb. on abdomen to arrest oozing. Easy recovery from operation.

CASE 69.—The second case was in a young lady whose mother had died of a supposed colloid cancer of the ovary some fifteen years before. The patient gave symptoms of pelvic peritonitis, developed ascites, and failed considerably in strength and flesh. Percussion revealed dulness in the left iliac fossa. An exploratory incision was considered the only means of making a diagnosis and giving her a chance of relief, and showed the cause of the ascites to be general tuberculosis of the mesentery, which was studded with innumerable small yellow nodules. Both tubes were somewhat enlarged, and, although they were not removed, were probably implicated in the tuberculous disease. In fact, judging from the recent observations by Hegar and others, I am inclined to believe that the origin of the tubercular infection came from the tube, since there was no tubercular history in the patient's family and the lungs were then healthy. For a time the patient's general condition improved, and there was no return of the ascites, but symptoms of pulmonary complication soon developed, and proved fatal on December 20th. Still, there are now a sufficient, if small, number of cases on record where the thorough emptying of the ascitic fluid by a free incision has greatly benefited the patient, and I should therefore consider presumptive tubercular peritonitis a valid indication for explorative laparotomy.

The third case, No. 70, was in a girl of 16 years, in whom the abdominal enlargement was so peculiarly situated that a suspicion

of hydatid degeneration of the liver was well justified. The abdominal enlargement was so great that the patient's heart and lungs were displaced and that she was cyanotic and was unable to rest in the recumbent position. The exploratory incision revealed merely ascites with here and there agglutinated coils of intestine and a large solid tumor of the liver, the nature of which could not be determined. The patient recovered entirely from the operation, but towards the end of a week developed symptoms of pleuropneumonia and accumulation of fluid in the pleural cavity. On aspiration, sixteen ounces of bloody serum were removed, but the patient died on the tenth day of the complication. I therefore have considered the case as one of recovery from the abdominal operation. An autopsy was not permitted.

The only laparotomy for intestinal obstruction which I have had occasion to perform was in a patient who heads the list in the table, upon whom I did ovariectomy during pregnancy.<sup>1</sup>

CASE 72.—Two days after delivery she again began to vomit, having been perfectly well and regular in her bowels since the operation. The abdomen also became tympanitic, and the bowels ceased to respond to enemata or laxatives. The vomiting continued, and on March 13th became feculent. I then saw her again with Dr. Benedict, diagnosticated intestinal obstruction, and advised, if renewed attempts to move the bowels by large turpentine enemata failed, immediate laparotomy. To this latter advice they could not at once make up their minds, especially as there was a lull of a day or two in the vomiting. But finally, when it recommenced and was purely feculent, they consented, and on March 17th I operated, at a time when the patient's condition was so low as to leave very little hope of saving her. Much valuable time had unfortunately been lost. The intestines were enormously distended with gas—fully six feet of the small intestine was black, and I had no trouble in finding numerous adhesions. The main point of constriction, however, was in the right iliac fossa, where a firm band of the thickness of a lead-pencil almost completely constricted the gut. After tying and dividing all the constrictions and adhesions, some eight or ten in number, I returned the intestines to the abdominal cavity and closed the wound. The patient recovered consciousness and speech, but died sixteen hours later of exhaustion. I think she could have been saved if the operation had been done a week sooner.

The displacement of the intestines by the emptying of the uterus through delivery must, I think, in some way have led to a loop of small intestine passing under the constricting band. The danger of intestinal obstruction by adhesions or constricting bands after laparotomy is attracting more and more the attention of our laparotomists, and the prevention of

<sup>1</sup> Reported in *N. Y. Med. Jour.*, Aug. 6th, 1887.

such adhesions is one of the problems still to be solved. By carefully replacing the omentum over the intestines, by early and regular intestinal evacuation after laparotomy, and perhaps by Peter Mueller's suggestion of applying carbolized oil or vaseline or iodoform to the pedicle and adhesion stumps just before closing the abdominal wound, such subsequent adhesions may possibly be prevented.

*Causes of Death.*—Of the eight deaths, three occurred in hopeless cases, numbers 48, 72, and 73, and should really not be counted in my statistics. The operation in these three cases was undertaken solely as a "forlorn hope," with but little chance of recovery. Of the five other deaths, four were from septic peritonitis, one of these being a suppurating cyst of the ovary with numerous adhesions and rupture of the cyst during its removal; the other three, intraligamentous cysts of the ovary; the fifth case of death was in a large double pyo-salpinx, with complete adhesions, rupture of sac during removal, and the fatal result appeared to be due to general septicemia. At all events, a reopening of the abdomen before death revealed no local cause for sepsis. It is apparent that all of these five deaths occurred in exceptionally difficult cases, where the possibility of septic infection was most imminent. I know no way of avoiding the occurrence of infection under similar circumstances but by the means always employed by me, viz., scrupulous cleanliness and exclusion of noxious material as far as in my power. I cannot help thinking that the drainage tube may, in at least the four cases of peritonitis, have acted rather as an irritant than as an agent of safety.

My sense of duty has impelled me never to refuse an operation where there was even the *slightest* chance of a successful result, and I have thus increased my percentage of mortality. But, by acting on this principle, I have saved several apparently hopeless cases. In reality only five deaths out of my forty-five operations this year should be credited to the operation itself and its subsequent dangers. In case 73, the abscess developed rapidly, and laparotomy was performed within eighteen hours after the abscess was discovered, too late, unfortunately, to save the patient, although saline transfusion was performed.

An interesting question, which may prove to be of some practical importance, was raised by Dr. James Barnesfather, of Dayton, Kentucky, on reading the report of my third case of



double ovariectomy during pregnancy, who wrote me asking whether I had ever heard of a case where both ovaries had been removed during pregnancy and the gestation continued. His argument was that, when both ovaries were gone, the expulsion of the contents of the uterus must inevitably follow. I replied that I was not aware of any literature on the subject, but that I could not see how the removal of a second ovary during pregnancy could influence the continuance of the pregnancy in any way except by the infliction of the additional wound to the uterine appendages; that I considered the question an interesting one and would suggest his sending his letter and my answer to the *New York Medical Journal*, in which the report of my three cases of ovariectomy during pregnancy had appeared, in the hope that some laparotomist might be able to throw light on the subject. (See *N. Y. Med. Journ.*, Sept. 24th, 1887.)

I have looked through the history of ovariectomy during pregnancy, but have failed to find a record of a case similar to my third one. Naturally, the occurrence of pregnancy during the existence of pronounced disease of both ovaries would be very exceptional.

Although the methods which I employed before, during, and after laparotomy may not differ essentially from those practised by other operators, I wish to put them on record, because I am often asked questions as to the details of my operations.

All the above operations which were not performed in private houses took place in the general operating room of Mt. Sinai Hospital, which is on the third floor, private rooms being on the second, and the general ward on the first floor. The private cases were then removed to separate rooms of their own and were placed in the care of special nurses. The charity cases were removed either to a separate room on the same floor as my ward and were also put under the care of a special nurse (thus in no way differing from the private cases); or, if the separate room was already occupied, they were put in the general ward, and the latter patients did in every respect as well as those who were in separate rooms. The private rooms at Mt. Sinai Hospital are sanitarily and hygienically as well appointed as those of any private hospital with which I am acquainted.

I think there is no question that the *very best possible* conditions for laparotomy, as for any other large operation, exist in

*small* institutions, private or public, where such operations are of every-day occurrence, and where operator, assistants, and nurses are thoroughly trained in that particular operation, and where the environment as regards operating-room, instruments, dressings, hygiene, etc., is always perfect. But there is also no doubt that, by scrupulous cleanliness and careful attention to all details, excellent results in laparotomy and other major operations can be obtained in large general hospitals. Laparotomy in private houses, while hygienically safe enough, is so troublesome to the surgeon in the matter of preparations and after-treatment, as not to be desirable except under special inducements.

*Preparatory Treatment.*—The patients upon whom I propose to perform laparotomy, for whatever purpose it may be, are prepared, if they are anemic, by a course of iron, quinine, and nutritious diet for as long a time before the operation as I may be able to have them under my control. Their bowels are thoroughly evacuated by mild laxatives (compound licorice powder generally answers every purpose), they take a lukewarm bath with special scrubbing on at least two days before the operation; a rectal enema and a vaginal douche are given in the morning, and if the patient needs stimulation, ten to twenty grains of quinine are administered three hours, and an ounce of whiskey half an hour, before the operation. In very nervous cases, one-half drachm of one of the bromides is also given half an hour before the operation.

While generally choosing the time as far from the menstrual period as possible, I have not been deterred from performing laparotomy, when accidentally the menstrual period was imminent or came on unexpectedly on the day fixed for the operation, and I have seen no bad results from such practice. Particular care was taken in such cases to insure aseptic closure of the vulvar orifice by sublimate pads during the operation. The pubes are always shaved, and just before making the abdominal incision the abdomen is scrubbed with soap, washed with ether, and then with a solution of corrosive sublimate 1 : 1,000.

The *anesthetic* used has been until recently ether, given with a Clover's inhaler, with the action of which I have been so well satisfied that I have used it exclusively for etherization during the past five years in all private and major hospital

operations. With it never more than two or three ounces of ether are needed for an operation lasting one hour, and there is less nausea. Besides, anesthesia can be induced so gradually as to avoid the disagreeable choking so much complained of in the beginning. My last twenty-five laparotomies have been performed under chloroform anesthesia, care being taken always to have the urine examined for albumin, pus or other evidence of renal disease, immediately before the operation. My reason for using chloroform recently has been the fear of the evil effect of ether on pre-existing disease of the kidney. I confess that I have not seen any bad effects from chloroform and that my experience leads me to prefer it to ether whenever there is the least doubt of the kidneys being perfectly healthy.


The operating room of the hospital is always carefully prepared for each laparotomy by being thoroughly scrubbed and disinfected by sulphur fumes. For two hours before the operation, a spray of two-per-cent carbolic acid solution is kept playing in the room, not for the purpose of *killing germs*, but because it was thought that the vapor of carbolic acid would to a certain degree purify the atmosphere of the room. At the beginning of the operation the spray is stopped. All the instruments are kept thoroughly clean and bright, and at the time of the operation are placed in flat pans containing a two-per-cent carbolic solution. The silk and catgut used are rendered aseptic in the usual manner; the silk by boiling and preserving in sublimate solution; the catgut by immersion in oil of juniper. Wire sutures I never use in laparotomy. The sponges are boiled in a five-per-cent carbolic solution, and kept in closed jars until used. During the operation they are washed in a 1:4,000 sublimate solution, and squeezed dry before being used. I think it important to mention that since my continental trip, in 1886, I have used exclusively pads of sublimate gauze with strings attached instead of the large flat sponges which I formerly employed to protect the intestines and encircle the pedicle during its ligation. These pads, which I first saw used by Billroth in Vienna, are washed and cleansed repeatedly as needed during each operation, but are thrown away afterward. The carrying of infection, therefore, in these sponges is entirely done away with. I was led to adopt this innovation because I found that either the large flat sponges were difficult to cleanse thoroughly, or if really thoroughly sterilized, they were liable



to become so brittle as to render it possible for some particles to be torn off and left accidentally in the peritoneal cavity. In addition, they are expensive and not always to be had of superior quality. The pads of gauze and the sponges on holders to be used during the operation are carefully counted and their number marked on the blackboard in the operating room. Before the abdominal wound is closed the nurses have to produce the same number of pads and sponges. The majority of the charity operations are done in the presence of from ten to fifteen spectators comprising a section of the class in gynecology of the New York Polyclinic, a certain number of other invited guests, and the house staff of the hospital. Those spectators over whom I have control are enjoined verbally to use every antiseptic precaution now in vogue. The invited guests receive a card for each operation of which the following is a fac-simile:

MOUNT SINAI HOSPITAL,  
66th St. and Lexington Ave.

Dr.....is hereby invited to a laparotomy  
for... ..on..... at 2:30 P.M.

 The acceptance of this invitation signifies a compliance with the following conditions.

- 1.—Absolute freedom from possible contagion, living or dead, within the past twenty-four hours.
- 2.—Clean clothing and linen which has not recently been worn in hospital wards.
- 3.—Non-interference with instruments, sponges, patient, operation and *silence* during the operation.
- 4.—Promptness in attendance, as the door is closed at the hour named.
- 5.—Departure from the room as soon as (but not before) the operation is completed.

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With all these precautions rigidly enforced, I do not think septic infection from without probable during one of my operations. It is true that of sixteen private operations only one died, and that was a case at her own home in the country, and a hopeless one, almost, before the operation (intestinal obstruction). But I am sure that the greater mortality among the charity cases must be chiefly ascribed to the fact that they happened to be more difficult cases, and that the general nutrition of these patients was poor.

*Operation.*—Nearly all my operations were performed early in the afternoon for reasons of convenience to myself. The

usual precautions are always scrupulously employed, as cleansing the body by a soap bath on the same morning, by entire change of linen, by the avoidance of contact with septic cases during the forenoon, and by thorough scrubbing and immersion in a 1:2,000 solution of corrosive sublimate of the hands and arms just before the operation. The same precautions are enjoined upon the assistants and the nurses. My staff of assistants during the operation consists of one chief assistant who stands opposite to me; a second who has charge of the instruments, and a third takes care of the Paquelin thermo-cautery. The anesthesia is in charge of another assistant who is chosen for his competency in this respect. Two trained nurses have the care of the sponges and gauze. The position of the bladder is ascertained by the sound before beginning to operate, in order to avoid its accidental injury. I stand on the right side of the patient facing her head (I have not been able to accustom myself to the method of the late Prof. Schroeder, who stood on the left side of the patient with his face to her feet and began the incision at the pubes) and make my incision as short as the probable circumstances of the case may require. In cases where presumably only the ovaries and tubes are to be removed, an incision of two inches in length has usually sufficed me. In ovariectomy I generally begin with a short incision of from two to three inches, but do not hesitate to lengthen it at an early stage if there are adhesions or the size of the tumor seems to call for it. Bleeding vessels are seized with hemostatic forceps and, if large enough, tied at once with catgut. I have of late years used no director, picking up the tissues one by one on mousetooth forceps held by my first assistant and myself. In this way I have usually succeeded in opening the peritoneal cavity without danger. Only once did I accidentally, the light being poor, overlook the fact that I had nicked the peritoneum and consequently cut into a prolapsed coil of small intestine. I closed the wound in the intestine immediately with Lembert's suture of fine catgut, then removed the adherent ovaries and tubes, and the patient made an uninterrupted recovery, the bowels being kept quiet by opium, and moving spontaneously on the tenth day. Since then I have guarded against the occurrence of a similar accident by always preceding each incision of the tissues close to the peritoneum with the point of my left index

finger, and by lifting the peritoneum up as high as possible into the wound with the forceps. Should the intestine be adherent to the peritoneum, a wounding of the former might occur in spite of the most careful dissection, and I have seen it happen to a very skilful operator.

When the peritoneal cavity is opened, if the case be one of ovarian tumor, I pass a large sound over the whole surface of the cyst to detect the presence or absence of adhesions, and then immediately plunge a small curved trocar into the cyst, and as soon as its wall is sufficiently flaccid seize it with blunt vulsella or flat cyst forceps, and endeavor to draw it out of the wound. The opening into the sac is enlarged by scissors or bistoury, so as to allow of rapid evacuation of its contents, and by a careful approximation of the abdominal walls to the tumor the entrance of cyst-fluid into the peritoneal cavity is prevented. I formerly turned the patient on her side while doing this; but I have now found the dorsal position equally safe and more convenient if free exit was given to the fluid. Adhesions are of course tied doubly and cut between, the ligatures being usually silk; in thin adhesions, catgut. The pedicle, if not too thick, is clamped by a long stout hemostatic forceps (one of Tait's set), the tumor is cut off above, and by a Peaslee's needle a double No. 12 silk ligature is passed through the middle of the pedicle under the clamp. The loop of the ligature is brought over the pedicle and the clamp, and the well-known Staffordshire knot is tied. For additional security I have been in the habit of carrying the ligatures once more around the pedicle in the same groove, and of tying a tight double knot on the opposite side where the first knot was tied. I have done this perhaps unnecessarily, but having heard of a case in the practice of one of our eminent surgeons in this city where the Staffordshire knot slipped and fatal hemorrhage took place, I have preferred to use this precaution, thinking that a little more silk in the peritoneal cavity would do no harm. I then sear off the portion of the pedicle projecting over the clamp with the Paquelin at red heat, and drop the pedicle. If the case was one of simple salpingo-oöphorectomy, I sear off the appendages over the clamp instead of cutting them and searing afterwards. The reason why I employ the cautery is because of the excellent results of Keith with it without the ligature but I have been afraid, I confess, to omit the ligature.



The pedicle is surrounded by a split pad of gauze during the searing, so as to protect the skin.

In long incisions or when the peritoneum shows a tendency to separate from the fascia, I pass a long silk suture through the whole abdominal wall on each side at about the middle of the wound, tie it and use it as a retractor, removing it when the final stitches have been inserted.

If there has been any escape of fluid from the cyst, be it pus or colloid, into the peritoneal cavity, or if there is considerable oozing from flat adhesions, I pour a free stream of sterilized boiled water at a temperature of 100–105° (Thiersch's solution of boracic and salicylic acids) from a pitcher into the peritoneal cavity, having it squeezed out by my first assistant as it fills the abdomen until it escapes perfectly clear. By careful and moderate sponging the peritoneal cavity is dried as far as practicable, care being taken to avoid unnecessary introduction of fingers, air, or sponges into the abdominal cavity, or handling of the abdominal viscera. If the peritoneum bleeds freely, one of the pads of gauze is introduced into the wound to cover the intestines while the sutures are being inserted.

If the incision is long, I pass a certain number of deep silk sutures through the abdominal walls and peritoneum (about one to the inch), which are to act as stays to the subsequent sutures. I then unite the peritoneum by a running catgut suture, passing the needle under each loop and carefully drawing it tight, and then proceeding to the muscular fascia and gradually upwards and outwards until the skin is included in the last row of the suture. The silk sutures are then tied. I have been led to use these latter sustaining silk sutures, because in cases where I employed only the catgut suture I have repeatedly seen a separation and gaping of a portion of the skin-wound owing to the too early absorption of the catgut. In short incisions I pass only two or three silk sutures through the whole abdominal wall including the peritoneum, and have always secured perfect union in this way. Recently I have used silkworm-gut in several perineal and three abdominal operations, and have been so well pleased with it that I think I shall use it in place of silk or wire whenever I wish particularly to avoid suppuration or the sutures are to be left in some length of time. Before closing the abdominal wound, of course, the gauze protecting the intestines is withdrawn, and if there appears to be any

oozing, a final sponge on a holder is passed down into Douglas pouch. The dressing consists in covering the abdominal incision with iodoform vaseline, a strip of protective, and a layer of sublimate gauze and absorbent cotton; all together fastened down by a moderately tight abdominal bandage.

*After-Treatment.*—The patient receives no nourishment during the first twenty-four hours, cracked ice only being administered for thirst. If there is any vomiting, *nothing whatever* is administered by the stomach, except medicines to allay this symptom, nutrition being carried on per rectum. Morphine is not given, except there is excessive pain or restlessness, and then hypodermically; the patient is allowed to be turned on her side, if more comfortable, at any time, and the bowels are usually moved about the fourth day by an enema, or earlier, if there is febrile reaction, by a saline laxative, the citrate of magnesia, or Rochelle salts. If there is much tympanites, a large enema (one to two pints), containing peppermint water one pint, spirits of turpentine one-half ounce, castor oil one ounce, is given with the fountain syringe. To produce copious stools when a rise of temperature appears to indicate septic infection, ten grains of calomel, given in doses of one grain every half hour, followed by a saline laxative the next morning, or five grains of calomel and ten grains of compound jalap powder, have generally produced the desired effect.

Vomiting or nausea have generally yielded, when not of septic origin, to the oxalate of cerium in five-grain doses, or to one-tenth-grain doses of cocaine, repeated every half-hour or hour; also to drachm doses, every half-hour, of sulph. magnesia in one ounce of hot water until half an ounce of the salt has been given. This latter is also an excellent method of causing free peristaltic action and several fluid stools when there is a slight rise of temperature with tympanites. I have given the sulph. magnesia for this purpose several days in succession, increasing the number of doses of 3 i. each to six and eight, if necessary, and the result has always been excellent. The hot-water bag placed over the epigastrium has also been a useful agent in allaying nausea. Hydrate of chloral per rectum has also proved beneficial.

My patients have so universally expressed the comfort derived from an ice-bag placed on the abdomen that I have allowed it to remain there for as long as a week, even though

there was no rise of temperature or other febrile indication for it. The diet of the patients has been fluid up to the end of the first week, as a rule. Kumyss is much used; also sarcopeptones (the preparation given in the hospital being Rudisch's), peptonized milk, beef or chicken broth, etc. Of course, enemata of beef peptonoids, with or without brandy, are given, if the strength requires, and the stomach is irritable. The stitches have usually been removed, if they were of silk, from the seventh to the tenth day, the abdomen being carefully supported by broad and long strips of adhesive plaster. Of late years, I have seen very few cases of mural abscesses, which I think is due to the careful cleanliness observed during and after the operation. A properly prepared abdominal binder has been given to all laparotomy cases, with the direction to wear it for at least a year, in order to prevent ventral hernia. My patients have generally not been allowed to sit up before the end of the second week, or to walk about until a few days later.

The pulse and temperature after a laparotomy do not seem to me to indicate any one particular point except this, that if the pulse reaches 100 beats, and the temperature exceeds 100°, there is cause for apprehension, and something is wrong. In cases which progress to recovery, the pulse seldom exceeds 90, and the temperature 99°. A rise does not always indicate septicemia, and may be due to gastric or intestinal irritation or tympanites, against which prompt measures should be taken. A rapid small pulse, with temperature scarcely above 100°, has always seemed to me a threatening sign if it began soon after the operation, and persisted.

*Drainage.*—I have recently expressed my views and experience on the subject of drainage after laparotomy in a paper read before the American Gynecological Society at its last meeting held in New York in September, 1887.<sup>1</sup> It will be noticed that, in a large proportion of my cases, drainage was employed. This was due, not to a preference that I entertain for drainage, but to the extensive adhesions which the majority of my cases presented. It has been my practice always to insert a glass drainage tube, open at both ends only, whenever there was any considerable amount of oozing, just before the

<sup>1</sup> See Vol. XI., Gynecol. Trans.



closure of the abdominal wound, or when cyst contents had escaped into the peritoneal cavity. I have always been careful to have the tube emptied of its contents at regular intervals, varying from four to six times in the twenty-four hours, according to the amount of secretion, and to guard against all possibility of septic infection from without during these manipulations. The drainage tube has always been removed as soon as the secretion either ceased entirely or became purely serous. I have certainly seen most wonderful recoveries when the drainage tube was used, and I feel that I should have been careless of the interests of my patients if I had failed to use it in such cases; but I cannot help entertaining a grave suspicion that, in certain of the cases which terminated fatally, the drainage tube acted as a direct irritant, and that the purulent peritonitis of which the patients died, and which did not develop until the end of the first week, *might* not have come on if I had closed the peritoneal cavity entirely and allowed such small secretion of blood or serum as happened to occur to take care of itself. I think we need much more extended experience to enable us to arrive at a distinct estimation of the cases in which drainage is indispensable, and others in which it may be avoided. A *sine qua non* to the complete closure of the abdominal cavity is undoubtedly the exclusion of septic material, and the prevention of the decomposition of secretion in the abdominal cavity after it is closed. This can only be achieved by the most scrupulous cleanliness of everybody and everything connected with the operation, be this accomplished by the use of germicides or otherwise. One little improvement which I have made in connection with the use of the drainage tube seems to me worthy of mention, and that is the insertion of an untied silk suture at the very spot where the drainage tube is to be placed (the lower angle of the wound), which suture can be used to draw together the lips of the wound when the drainage tube is removed. The more rapid closure of the track of the drainage tube seems to me to be thus secured, and there is less probability of a remaining fistula.

Generally speaking, the utility of the drainage tube is at an end after forty-eight hours, when the effusion of lymph around the tube has closed the peritoneal cavity to external influences. In one case I have seen what seemed to be a peculiar effect of the drainage tube on the stomach which I could only explain

on the principle of reflex irritation. In Case 59, obstinate vomiting continued for three days after the operation and seemed to be incited by each removal of the fluid in the drainage tube. The removal of the tube while there was still a quite abundant secretion of bloody serum resulted in the almost immediate cessation of the vomiting, and the patient went on to rapid recovery.

*Intra-ligamentous Cysts*, that is, those ovarian cysts which, instead of developing upwards into the abdominal cavity away from the pelvic basin, grow down into the pelvis between the layers of the broad ligament and dissect up the pelvic peritoneum in their progress, are to me the most formidable tumors of the uterine appendages. And with good reason, for three out of the five deaths after ovariectomy occurred in intra-ligamentous cysts, which were torn into shreds during the attempt at enucleation, requiring many ligatures and much handling to check hemorrhage, and the use of a drainage tube in consequence of the escape of the colloid cyst fluid into the peritoneal cavity. Death occurred in all from septic purulent peritonitis.

I think I have made the mistake, when beginning the enucleation, of making too large an incision into the capsule, which being thin, tore under the finger into irregular flaps which could not be brought together and stitched to the abdominal wound. Careful evacuation of the contents through as small an opening as possible, then clamping or ligature of this opening, traction of the sac upwards toward the incision as far as possible, and careful enucleation through a small incision, first with thick sound and then with finger until enough of the capsule can be separated and elevated to allow it to be stitched to the peritoneum at the abdominal wound, and, finally, completion of the enucleation of the cyst-sac, would, I think, largely do away with the dangers and bad results of the operations on these particular cysts. Cysts of the broad ligament, while resembling in their topographic development intra-ligamentous ovarian cysts, and therefore also difficult to enucleate, still show more of a tendency to develop upwards, and their sacs can, therefore, generally be easily stitched to the abdominal wound, and allowed to heal by granulation without enucleation. Besides, should any of their bland fluid enter the peritoneal cavity, it is of no consequence, since it carries no septic matter. I have

thus removed and cured a cyst of the broad ligament containing forty-eight pints of fluid; the sac, which was stitched to the abdominal wound, reaching from the diaphragm to the pelvic floor, and from the median line to the crest of the ilium, and requiring six months for its complete closure. (Case 17, operated in Feb., 1885, not included in this list.)

A question which has of late been attracting considerable attention is whether, in case of inflammatory disease of one ovary and tube, the other apparently sound ovary and tube should be removed at the same time. Tait has recently published a series of cases in proof of the advisability of removing both appendages if those of one side are diseased, since the healthy organs in the cases reported soon became similarly diseased and required a second operation for their removal. Other operators give a like experience. Undoubtedly the surest means of completely curing the case is to remove both appendages as completely as possible. And if there is the slightest evidence of inflammatory disease on the other side (such as a highly congested tube or an enlarged ovary), those organs should usually be removed. But it seems to me that the patient should have a voice in this matter. If she is a young single woman who wishes and expects to be married, or a married woman who desires offspring, the chance should be given her to fulfil her destiny or realize her desire, even though eventually a second laparotomy may become necessary—a prospect which, with our present antiseptic measures, is, after all, not such a terrible risk. If, on the other hand, the woman is a widow or an elderly single person who never expects to marry, presumably the possession of one ovary and tube is of very little value to her. After explaining the case clearly to the patient, she should be allowed to state her wish, which the surgeon should respect so far as the condition of the apparently normal appendages will permit. Thus in Case 35 the patient urgently requested me to save her other ovary, if possible, as she was engaged to be married. This I promised to do unless I found it decidedly diseased. There was found to be a monocyst of the right ovary, and a small hematoma of the left ovary, which latter I did not deem it wise to allow to remain. Undoubtedly, many ovaries with numerous small cystic follicles have been removed under the conscientious impression that these cysts must ultimately develop into a multilocular



tumor, when they were merely slightly distended Graafian follicles which would never disturb the patient. It is as yet difficult to draw the line where an ovary is so diseased as to entirely lose its functional activity, or to say which minute cysts are likely to develop into large tumors, or remain quiescent. Particularly in commencing cystic degeneration, where there is a desire for children, should the conservative and preservative plan be adopted. In inflammatory affections of the appendages, especially with a history of venereal infection, the removal of both appendages at one sitting is preferable.

I have only once followed the original and ingenious suggestion of Dr. Wm. M. Polk, of New York, to detach adhesions of ovaries and tubes with the fingers, "strip" the tubes of whatever mucus they may contain, and return them to the abdominal cavity, provided neither tubes nor ovaries appear so diseased as to require removal. In that case (No. 60), I operated for persistent pain on the left side, where I found ovary and tube but slightly adherent and apparently normal, and hence returned them; on the right side, where no pain had been complained of, both ovary and tube were considerably enlarged and extensively adherent, and were removed. The patient has since spoken of feeling pain in the right side only. I have frequently noticed that the pain was more severe on the side where there was the least disease, and attribute this fact to so-called sympathy.

Only in one case (No. 63) could a gonorrheal infection be positively traced as the cause of the inflammation of the uterine appendages, and, curiously, in this case the tubes, while adherent, were not enlarged or apparently diseased; the ovaries, however, were both as large as a hen's egg, and completely adherent. The patient, a girl of 20 years, admitted having had intercourse with "dozens" of men since her fourteenth year. The ovaries showed multiple, fine cystic degeneration in a marked degree. While I do not for a moment question the potent influence of the gonorrheal virus as a cause of salpingo-oöphoritis, my experience does not allow me to agree with the, in my opinion, extreme views of Noeggerath that gonorrhea is the chief source of inflammation of the uterine appendages or of female sterility.

What the real, primary cause of the inflammation of the appendages is, cannot always be ascertained. The history of my cases has generally pointed to exposure to cold during menstru-

ation, to imprudence after confinement or abortion, and to unknown factors in the production of the pelvic inflammation. I have always endeavored to trace a venereal origin, but only in the case mentioned has such a cause been admitted. Indeed, most of the cases were those of respectable married women, whose husbands denied having had gonorrhea. And I have seen quite a number of cases of catarrhal endometritis, with enlargement of the tubes and ovaries, in virgins.

Were the statement of Noeggerath true that gonorrhea in the male is *never* entirely cured, and that the majority of women married to men who have had gonorrhea are sterile because they have diseased ovaries and tubes in consequence of infection from their husbands, it is obvious that, considering the sexual habits of a large proportion of our young, unmarried men, at least in the large cities, fully two-thirds of all married women would be sterile and suffering from disease of the uterine appendages. That this is not the case every one knows.

Recent observations have shown me that in apparently perfectly potent men azoospermia, as the result of epididymitis or sexual excesses, is not so uncommon a cause of sterility as is generally assumed.

Pathologically, in my experience, there are three varieties of tubal disease which give rise to the symptoms calling for removal of those organs:

1. The most common variety, where the tubes are enlarged, their calibre more or less increased by interstitial hyperplasia, which is the result of frequent acute attacks of endo-salpingitis and peri-salpingitis. The lumen of the tube is either normal or often contracted, but never increased in this condition. Often a few drops of pus can be squeezed from the tube, but there is no appreciable accumulation of fluid in the canal. The fimbriated extremity may be open, or it may have been closed by agglutination to the ovary.

The ovaries may be apparently healthy, or they may be slightly cystic or even atrophic. Generally, both ovary and tube are bound down by more or less firm adhesions, which so unite the organs as to impart to the examining fingers on bimanual touch the sensation of an irregular, but well-defined, slightly movable tumor; and during the operation, the intraperitoneal fingers at first fail to discover either tube or ovary, the pouch between the broad ligament and the posterior pelvic

wall being occupied by a smooth, indistinct body, on the surface of which the finger soon detects a little groove, from which spot the peeling out of the ovary and tube is usually easily accomplished. The ovary lies at the bottom of the pouch, with the enlarged tube curled around, over, and behind it.

Examples of this condition are shown in Figs. 54, 56, 57, 58, and 62. I have called this particular form of tubal disease "pachy-salpingitis," or thickening of the tube;<sup>1</sup> it is an interstitial salpingitis, and, in its marked form, incurable except by removal of the appendages. Local galvanization may, in the early stages, relieve the pain and perhaps prevent the increase of the disease for a time.

2. The next most common condition is dilatation of the tube, usually without a hypertrophy, and often even with a thinning of its walls, the sac containing generally pus, at times blood or serum. The largest tubal sac I have seen was the hematoma shown diagrammatically on page 34, from Case 53, the next largest was a pyo-salpinx shown in Fig. 51, Plate III. The ovaries may be normal or atrophic, or they may also be destroyed by a purulent accumulation, as seen in one of the specimens of Case 51, and in Case 27, where both tubes were distended with pus and both ovaries were changed to large abscesses, which ruptured during removal; the patient recovered. I have introduced the latter case merely as an example of double ovarian abscess and pyo-salpinx.

Usually both tubal sac and ovary are extensively adherent, and the former is liable to rupture during removal. Preliminary aspiration of the fluid through the abdominal incision is therefore advisable before proceeding to break up the adhesions.

3. The variety least frequently met with during laparotomy, in my experience, is catarrhal salpingitis, where the tube is neither enlarged nor dilated, but merely intensely hyperemic, containing a few drops of muco-pus, and, generally with the ovary, attached by fresh filmy adhesions to the neighboring organs. I do not mean to be understood that this form of tubal disease is not common, for I believe it to be more frequent than any other, and indeed the usual initial variety in

<sup>1</sup> See my article on "Electricity in Gynecology," *JOUR. OBST.*, Dec., 1885, p. 1,256.



all the cases where gonorrheal infection does not at once set up a violent acute salpingitis. But I have met with only a few instances, probably because I do not operate, as a rule, until the disease has assumed one of the first two types already described.

It is for this variety that the method of Dr. Polk, to break up the adhesions, squeeze out the contents of the tube, and return it to the abdominal cavity, is intended. I would add to the "stripping" of the tube the suggestion, that the tube could be cleansed more thoroughly and germs in it destroyed by gently forcing a warm sublimate solution (1 to 5,000) from a syringe through it into the uterine cavity, before dropping the appendages.

Whether we are justified in this effort to save the organs, and whether the suggestion to prevent them from dropping back and again becoming adherent by stitching the fundus uteri to the anterior abdominal wall, or by placing a drainage-tube behind the uterus, or by shortening the round ligaments should be carried out—these questions only much additional experience can answer.

A case of catarrhal salpingitis is shown in Fig. 52, Plate III., where both tubes and ovaries were universally, but very lightly, adherent. The perfect recovery of the patient has satisfied me that the removal of the organs was preferable to the doubtful plan of returning them after loosening the adhesions.

Still I hope that this new method will prove to possess a future.

Only in one instance did I find it impossible to break up the adhesions and form the usual pedicle. It was in the case of a mulatto woman from Stamford, Conn., three years ago, who had had several severe attacks of pelvic peritonitis. I could make absolutely no impression on the solid adhesions with my fingers, and was compelled to lift up the whole broad ligament with the appendages on each side as far as I could, pass the ligature as deep as possible and tie and sear off all I could include in the ligature. The patient made a perfect recovery, and her physician wrote me a year or more after, that she remained perfectly well and free from pain, although menstruating regularly.

I will close this report by a few observations on the *results of salpingo-oöphorectomy*, not the immediate recovery from the

operation, but the permanent freedom from the symptoms which called for the removal of the diseased appendages. It has been observed by a number of operators that a certain proportion of the cases in which the diseased ovaries and tubes have been removed, for months after the operation complained of symptoms very similar to those which were present before, and to relieve which the operation was performed. Thus I have had patients come to me within six months after the operation telling me that they still had the same pain in both ovarian regions, and that they had besides feelings of discomfort, such as hot flashes in the face, rush of blood to the head, restlessness, insomnia, irritability of temper, in fact, a multitude of neurotic manifestations, all of which led them to believe that they had not been benefited by the operation. As regards the persistence of pelvic pain, I have not been able to offer a better explanation than that the site of the diseased appendages had become changed by fresh adhesions so as to be the seat of a localized neuralgia, which would probably disappear in course of time; or else, that a more or less distinct plastic exudation had taken place around the pedicle. Several times, a local examination revealed to me the presence of such an exudation which gradually disappeared under appropriate treatment, but more frequently I have found an absolute freedom from local disease and have been obliged to attribute the pain to a neuralgic source. I have taken particular care of recent years to inform all patients from whom I proposed to remove the diseased ovaries and tubes that they must not expect an immediate cessation of all their pains, but that certainly some months would elapse before entire relief would be obtained. The other reflex neuroses are such as occur very commonly at the time of the menopause and are treated by remedies calculated to allay nervous irritability and hysterical symptoms. Such patients may be confidently assured that they are simply passing through the ordinary phases of the "change of life," and that time will surely bring complete relief. I lay stress upon the persistence of these symptoms because I am asked every now and then by some observant physician or inquisitive patient whether the operation which I propose will result in an immediate and permanent cure; these questions being incited by the knowledge of some similar case in which the pains persisted after the operation. I have found the local use of

counter-irritants and of galvanism to be the most efficient remedies for pelvic pain. The climacteric hystero-neuroses are treated on general principles. It is important to keep watch of these cases for some time, since a case that apparently was not cured by the operation within a year may, after two or three years, be entirely well. My experience shows several such instances.

As regards the justifiability of the removal of the apparently normal ovaries for certain reflex neuroses, such as epileptiform and cataleptiform convulsions and threatened insanity, apparently depending upon and associated with the menstrual function, my experience leads me to be exceedingly conservative in recommending the operation for such indications. I have once removed the ovaries which were apparently healthy for long persisting dysmenorrhea and reflex gastric irritation (nausea, vomiting, inability to retain food) which rendered the patient's life miserable for three weeks out of every four, and made her a bedridden invalid from inability to use her lower extremities, and the result was most marvellous: the patient not only soon regained perfect control over her stomach and improved in general health, but she also began to walk, although eminent neurologists had said that she had sclerosis of the spinal cord. It is five years since this operation was performed, and the patient's improvement continues to the present day.

Again, I have removed ovaries for what seemed to be menstrual mania, have found temporary improvement, and within three months the patient committed suicide in a fit of mental aberration (for full report of these cases see *New England Med. Monthly*, Sept., 1884). I have removed the ovaries for cataleptiform seizures, have seen a temporary cessation of the symptoms, and six months later they returned with almost their former intensity. To remove the appendages for mania, for epileptic or cataleptic seizures, simply because these attacks occur in a woman and it is hoped the menopause will check them, as I know has been done more than once, seems to me unjustifiable and irrational. Unless the symptoms complained of appear distinctly connected with and dependent upon the menstrual function, the removal of the ovaries is not to be thought of. In any case, a thorough trial of all other remedies at our command should be scrupulously made before



considering and performing the operation of oöphorectomy. The statement I have made in speaking of the ultimate results of the removal of the diseased ovaries and tubes applies also to the permanent success of oöphorectomy for reflex neuroses, viz., that time must be allowed to elapse before deciding whether the results will be permanently beneficial or not. It seems scarcely necessary to add that, in the above remarks on the justifiability of oöphorectomy for reflex neurotic symptoms, I refer entirely to normal or apparently normal appendages. If these are appreciably diseased, the indication for their removal is immensely strengthened.

In four cases of removal of diseased and adherent ovaries and tubes, menstruation has persisted with more or less regularity for from one to two years after the operation. When the apparently normal ovaries and tubes are removed, as has been done by me, in all, twelve times, including two hysterectomies for fibroids and four vaginal hysterectomies for cancer, absolute menopause was at once achieved. Whether in the former cases any minute trace of the ovary was accidentally left behind during the separation of the adhesions can be merely suspected. I certainly endeavored to remove the entire organ and tube in each case. The presence of a third ovary is so rare as to offer but an unsatisfactory explanation.

So far as I have been able to ascertain in the few cases which remained under my observation, there was no change whatever in the sexual feelings of the patients after removal of both ovaries, and their appearance certainly did not betray any masculine tendency.

Ovarian tumors, should, as a rule, I think, be operated upon early. I mean, even before they have given rise to distinct symptoms, except such as may have called for the examination which revealed their presence. If we wait for the advent of severe pain, rise of temperature, or even a chill, we are far more liable to encounter difficulties in the course of the operation and changes in the condition of the tumor which particularly endanger the life of the patient. A laparotomy under our present stringent rules as regard cleanliness and avoidance of infection, and with the increased dexterity which each additional case brings, is not, if uncomplicated by the conditions just mentioned, a very dangerous operation. It becomes so

by delay and by the want of dexterity or the carelessness of the operator.

As regards removal of the diseased ovaries and tubes—salpingo-oöphorectomy or Tait's operation—I am not so sure that haste in performing it is advisable. The diagnosis of the exact pathological alteration in these cases is so often uncertain and the patients so frequently desire still to be left in condition for maternity, that it seems to me to be our duty to preserve to them the appendages so long as there is the slightest hope of restoring them to functional activity. I have therefore been reluctant to advise or perform the extirpation of the organs so long as I could not satisfy myself that they were hopelessly diseased. The symptoms complained of by the patient (constant pelvic pain and a persistent demand for its relief at any cost) have several times induced me to comply with the patient's wishes and to perform the operation, and in such cases the pathological condition found has fully justified the procedure. All I wish to inculcate is a careful consideration of the patient's symptoms and of the results of a physical examination, and chiefly of the possible beneficial results of palliative treatment, before proceeding to perform an operation which, once done, can never be undone. It is self-evident that diseased and functionally imperfect ovaries and tubes, if they can no longer be restored to health, are merely a source of annoyance and useless to their owner, and had better be removed. To determine precisely what organs are so diseased is a problem still before us for solution. The removal of the ovaries for the arrest of growth of interstitial fibroids is, in my opinion, a highly justifiable and beneficial operation which, however, is not usually necessary in large sub-peritoneal tumors. How much electrolysis, now so popular owing to recent publications, may influence this opinion, remains to be seen.

I have met with but one case of tubercular peritonitis in an adult woman. Although the ultimate result was unfortunate, I feel that the many successful laparotomies performed for this condition by Fehling, Hegar, Koenig, Spencer Wells, Van de Warker, and others, abundantly justify the operation in my case. Although we cannot as yet explain the manner in which a complete recovery eventually ensues after the laparotomy that such an improvement and cure *does* take place in the majority of the reported cases is beyond question, and in such

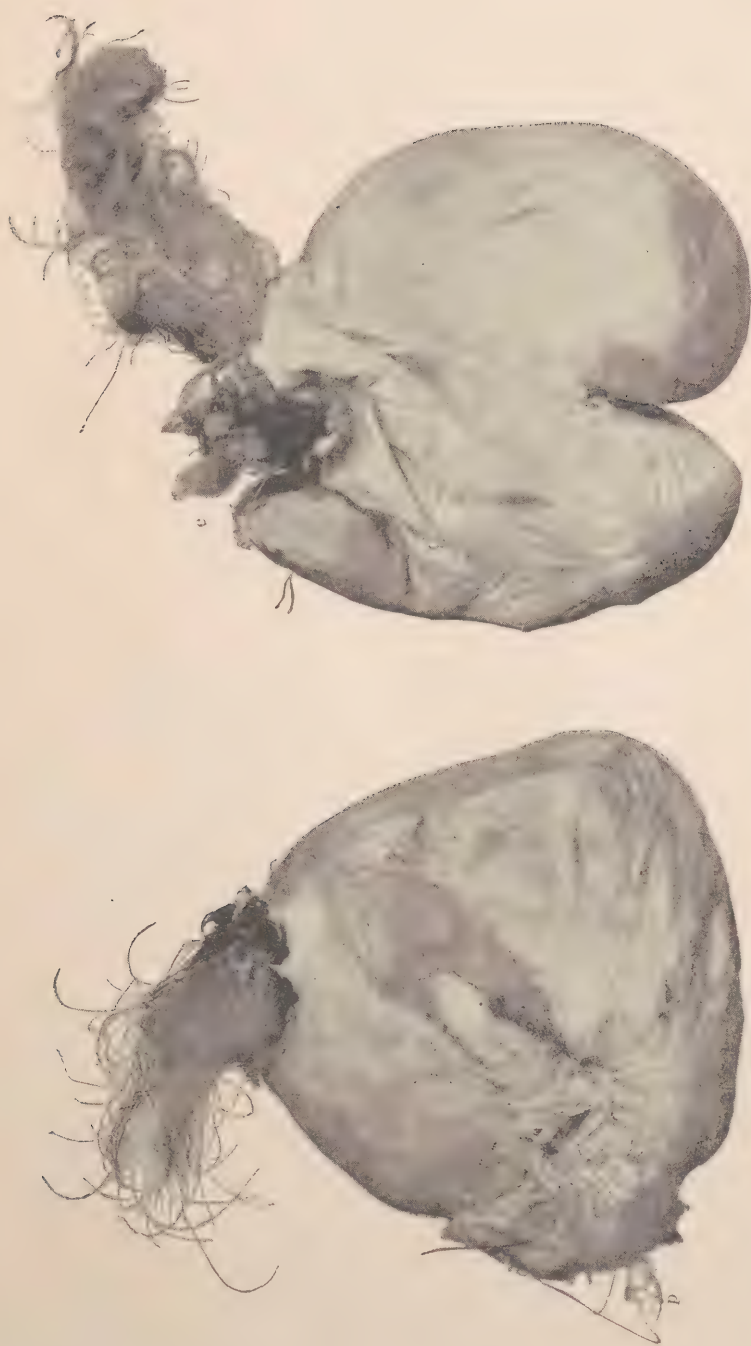


FIG. A.

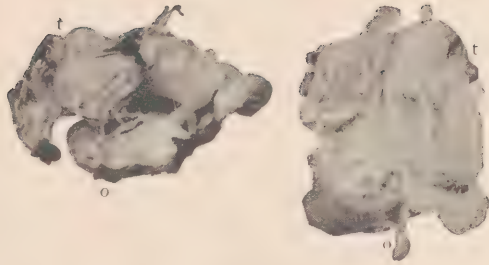
MUNDÉ; LAPAROTOMIES, 1886-87.

FIG. B.

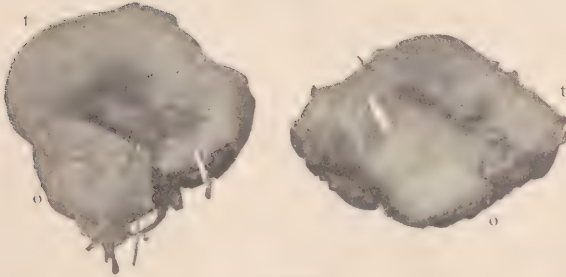
Case 40, Double Ovariotomy during Pregnancy; Dermoid tumors, Fig. "A," left tumor, blond hair; Fig. "B," right tumor, black hair; at "c" showing attachment of ruptured part of cyst, which was accidentally torn from the specimen.



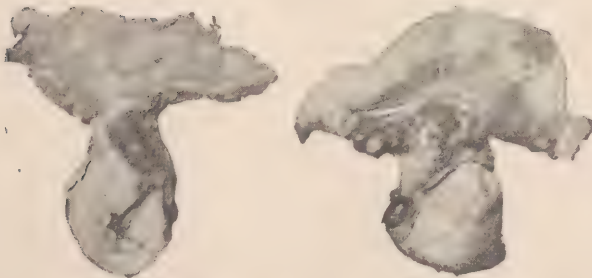




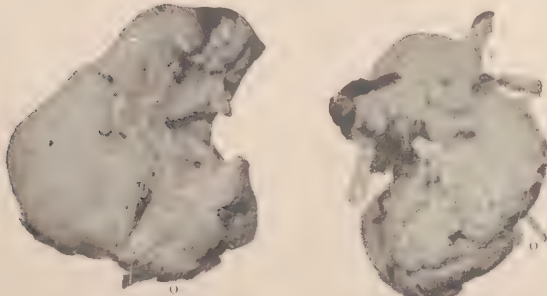
CASE 11.



CASE 54.



CASE 62.



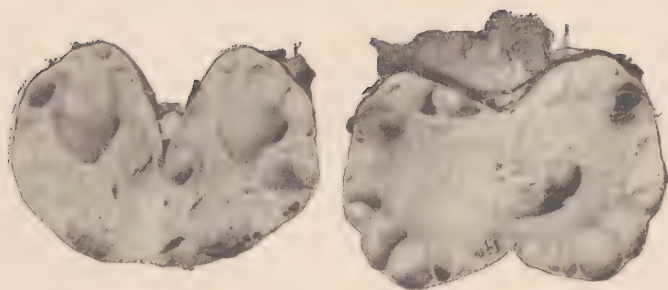
CASE 56.

MUNDÉ; LAPAROTOMIES, 1886-87.

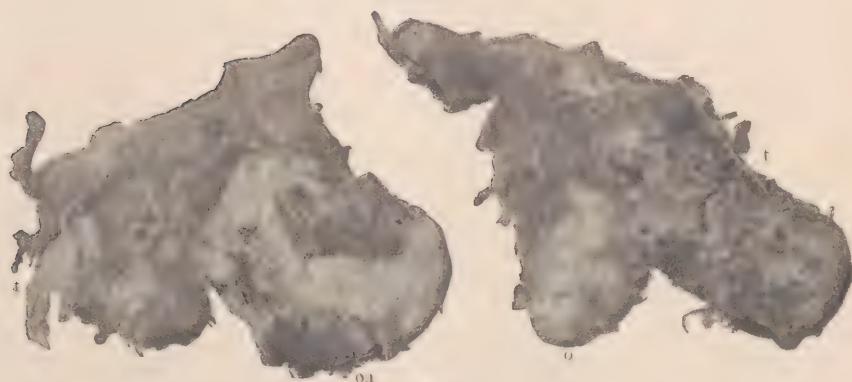
Cases 11, 54, 62 and 56, double Salpingo-oöphoritis, all with complete adhesions; "o," ovary; "t," tube. (No. 11 not included in table, produced merely to show filmy adhesions.)



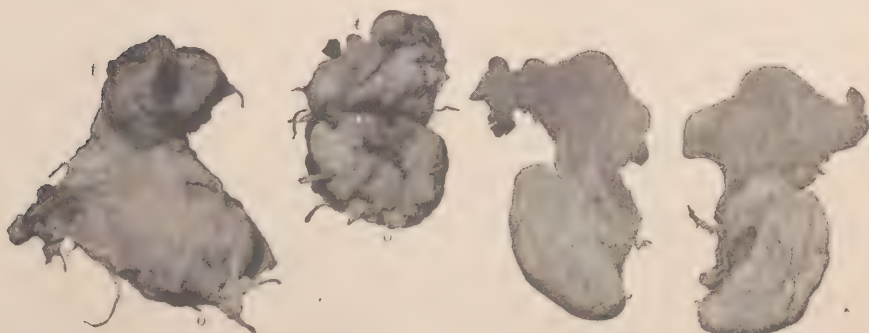




CASE 63.



CASE 51.



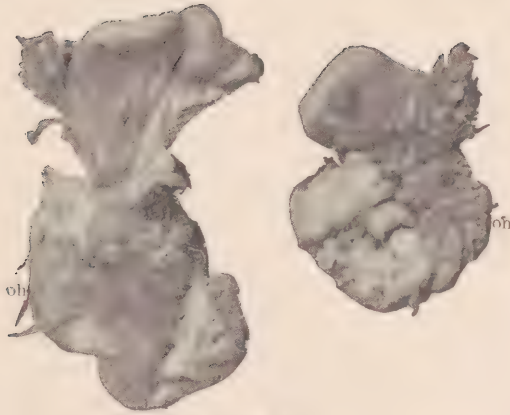
CASE 58.

CASE 52.

MUNDÉ; LAPAROTOMIES, 1886-87.

Case 63, Polycystic Ovaries, tubes normal. Case 51, Double Pyo-salpinx. One ovarian abscess, "oa." Case 58, Double Salpingo-oöphoritis, Case 52, Double Peri-oöphoritis; ovaries and tubes small, tubes intensely congested; "o," ovary; "t," tube.

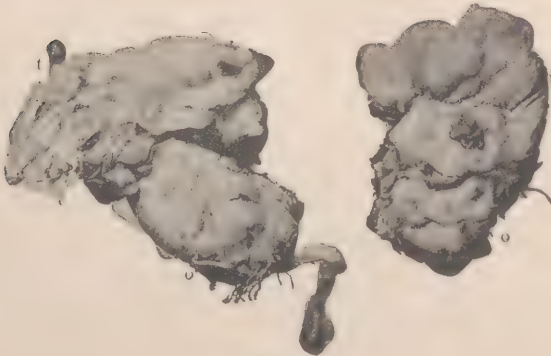




CASE 59.



CASE 27.



CASE 57.

MUNDÉ: LAPAROTOMIES, 1886-87.

Case 59, Hematoma of both Ovaries. Case 27, Double Pyo-salpinx and Ovarian abscess, "oa." Case 57, Double Salpingo-oöphoritis, all with complete adhesions; "o," ovary; "t," tube; "oh," Ovarian Hematoma. (No. 27 not included in table.)





an otherwise hopeless disease, in my opinion, reason enough for operating.

*Ventral hernia* I have seen after but one of my operations, and that was a hysterectomy not included in this list. Careful strapping and bandaging until the patient was discharged, and a well-fitting, tight abdominal corset to be worn for at least a year in long incisions, have, as far as I know, prevented this accident in my practice.

The experience which has influenced some of the above remarks is not entirely drawn from the cases here reported, but to some extent from my previous laparotomies, 28 in number. Among these there were 16 ovariectomies, 2 operations for cysts of the broad ligament, 2 hysterectomies for fibroids, 6 salpingo-oophorectomies, and 3 oophorectomies for fibroid tumor, menstrual mania, and reflex menstrual neuroses, respectively, making a total of 73 laparotomies. This experience leads me to concur most heartily, when I recollect my early trials and failures with laparotomy, in the statement made and insisted upon by Tait, that great success in laparotomy can be achieved only by concentrating the operations in the hands of comparatively few operators, and by operating, as a rule, early. In no operation does practice and experience so benefit the operator, and thereby the patient, as in laparotomy, since in no other surgical procedure is the exact pathological condition liable to be so uncertain or is the unexpected so likely to occur. Only experience can prepare the surgeon for these emergencies and teach him to meet them coolly and effectually. When we have fewer operators with more operations, the successes of laparotomy in this country will equal those of the great laparotomists of Europe. It was not the climate nor the inferior physique of the American women, but the inexperience of the operator (largely produced by the scattering of the cases) and the inattention to surgical and hygienic details, which until recently has been to blame for our poor results. Already, however, our most successful laparotomists are showing figures nearly, if not quite, equal to the best statistics abroad, and soon, I hope, we will have no reason to be ashamed of our records.

# CONTRIBUTIONS

TO

# MEDICAL LITERATURE.

BY

PAUL F. MUNDÉ.

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